

Remarks

Misnumbered claim 30 has been renumbered claim 29, and "claim 29" in line 1 of the renumbered claim 29 has been replaced with claim 28--consistent with the Examiners suggestions.

Claims 1, 5, 16, 18, 20, 24 and 29 have been amended and claims 6, 9-15, 17, 19 and 22-23 have been canceled. Emphasis has been placed on conforming the claim language of claims 1 and 16 to figures 2 and 7 respectively; where any receptacles, 16 and 116, are open, empty and contain nothing within them be it separate reference materials or test samples and are integrally formed of a one-piece body.

Claim Objections

As mentioned, misnumbering in misnumbered claim 30 has been corrected, as suggest by the Examiner.

Claim Rejections-35 U.S.C. 102

Claims 16-18 and 20 have been rejected as being anticipated by Bates Publication 2003/0193988. The limitations of claim 23 have been inserted into amended claim 16 as well as other distinguishing language. Bates Publication shows widely separated double test chambers (24) and (26), at least one of which contains required alumina test sample (48). As applicants point out in paragraph [0006] page 2:

"...One embodiment of the molten bath testing probe includes a singular (one-piece) metal body having pair of integrally formed receptacles that is submersible into a bath of molten material, e.g. electrolyte..." (emphasis added)

Bates Publication teaches neither integrally formed nor one-piece probes and does not anticipate amended claims 16, 18 and 20; claim 17 being canceled.

Claim Rejections-35 U.S.C. 103

Claims 1-3, 5-6, 9, 10, 13, 16-18, 20 and 24 are rejected as obvious in view of Bates Publication 2003/0193988. As regards, claims 16-18, 20 and 24, again, limitations of claim 23 have been inserted into amended claim 16, as well as further language such as "an open, empty receptacle" whereas, Bates Publication requires use of a pre-inserted solid test sample (48) (see Abstract, paragraph [0018] and claim 1) and does not teach or show receptacle and reference member "being integrally formed...on one-piece". As to claim 1, and claims dependent thereon, required limitations include "open, empty sample receptacles...for holding solely a sample of the molten material..." Applicants inserted limitations are important and must be considered, as the court stated in In re Boe and Duke, 184 U.S.P.Q. 38, 40 (1974-C.C.P.A.):

"This court has stated that all limitation must be considered and that it is error to ignore specific limitations distinguishing over the references. In re Saether, 181 U.S.P.Q. 36, 39 (1974 C.C.P.A.); In re Glass, 176 U.S.P.Q. 489, 491 (1973 C.C.P.A.)."

Applicants respectfully submit that the independent claims have been amended substantially in view of the cited art and that amended claims 1-3, 5, 10, 13, 16, 18, 20 and 24 would not be obvious to one skilled in the art at the time the invention was made in view of Bates Publication, alone or in combination with Wall U.S. 5,577,841; claims 6, 9, 10, 13 and 17 being canceled.

Claims 4 and 21 are rejected under 35 U.S.C. 103 as unpatentable over Bates (Publication) in view of Nakashima et al. U.S. 5,037,211. Type K as well as R thermocouples are disclosed by Nakashima et al. '211 for measuring the temperature of

the molten metal, but the container described is a refractory molten metal cup which would add nothing to Bates Publication in the rejection of claims 1 and 16 upon which claims 4 and 21 respectively depend.

Claims 1-3, 5-8, 10-12, 15-20, 22-23, 24-25 and 28-29 are rejected as being anticipated by Bates U.S. 6,220,748 (Bates 2).

Bates 2 requires a spaced apart, independent open cup test sensor (30) and a reference sensor (20) selected from metals, such as aluminum or stainless steel ceramics, calcined alumina and refractories. As shown in Fig. 2 of Bates 2, the probe body is not a one-piece body with a integrally formed sample receptacles (applicants' amended claim 1) nor a one-piece steel body with a reference body which is the body where the receptacle and reference member are integrally formed from steel in one-piece where all functions of measuring alumina content, ratio of AlF_3 to NaF and bath superheat are allowed by the probe design and the associated analyzer (applicants' amended claim 1). The Bates 2 probe contains nine parts (22, 23, 21, 25, 26, 28, 36, 35 and 31) that's not integral and it is certainly not a one-piece steel body where the receptacles-reference member are formed in the body in one-piece, see applicants' Fig. 3 and 8 which illustrate the simplicity of their invention, reducing probe parts from nine parts to one part, dramatically reducing assembly time and costs (compare to Bates 2 Fig. 2) and also note In re Boc and Duke, cited previously. Applicants respectfully submit that independent claims have been substantially modified, and that Bates 2 does not make amended claims

1-3, 5, 7-8, 16-20, 24-25 and 28-29 obvious; claims 6, 10-12, 15, and 22-23 having been canceled.

Claims 13-14 and 26-27 are rejected as obvious based on Bates 2 in view of Clark et al. U.S. 3,882,727. Claims 13-14 have been canceled. Clark et al. is cited to show reuse as Examiner points out Bates 2 does not explicitly teach that the device is reusable. Clark et al. utilizes bimetallic blades (23,24) which grip cup (15). Applicants' see no reference in Bates 2 as having a problem in this regard. Why would Bates 2 try such a complicated solution as taught by Clark et al., especially since Bates 2 has no releasable cup (15) which in Clark et al. requires fins 15 c and 15 d for making an electrical connection, compare Clark Fig. 2 vs. Bates 2 Fig. 2. Further in this regard, case law dictates that in proceeding from the prior art to the invention claims, one cannot base obviousness of what a person skilled in the art might try, or find obvious to try, but must consider what the prior art would lead a person to do, as stated in In re Tomlinson, Hall and Geigle, 150 U.S.P.Q. 623,626 (C.C.P.A. 1966):

Our reply to this view is simply that it begs the question; which is obviousness under section 103 of compositions and methods, not of the direction to be taken in making efforts or attempts. Slight reflection suggests, we think that there is usually an element of 'obviousness to try' in any research endeavor, that it is not undertaken with complete blindness but rather with some semblance of a chance of success, and that patentability determinations based on that as a test would not only be marked deterioration of the entire patent systems as an incentive to invest in those efforts and attempts which go by the name of 'research'.

And also affirmed in The Gillette Co. v. S.C. Johnson and Son, Inc., 16 USPQ 2d 1923, 1928 (Fed.Cir. 1990). Further, Clark et al. in no way provides what Bates Publication or

Bates 2 lack to make obvious the other requirements of amended claim 24; or amended claims 1 and 16.

Applicants respectfully submit that combinations of Bates Publication, Bates 2, Clark et al., Wall and Nakashima et al. would provide a complicated, non-reusable probe having at least a half dozen parts with a receptacle containing an alumina test sample spaced far distant from any reference member.

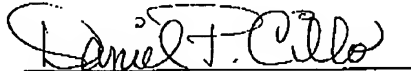
Applicants respectfully submit that neither Bates Publication, Bates 2, Clark et al., Wall nor Nakashima et al. taken either alone or in any combination, teach or make obvious to one skilled in the art at the time of the invention was made, the invention of amended claims 1-5, 7-8, 16, 18, 20-21 and 24-29.

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Summary

In view of the foregoing amendments and arguments, applicants respectfully submit that all pending claims, claims 1-5, 7-8, 16, 18, 20-21 and 24-29 are in condition for allowance, and applicants respectfully request reconsideration and allowance of those claims. Any suggested language for allowance by the Examiner would be promptly considered.

Respectfully submitted,



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